REMARKS

At the outset, the Examiner is thanked for the thorough review and consideration of the pending application. The Final Office Action dated January 11, 2006 has been received and its contents carefully reviewed.

Claims 1-10, 15-24 and 29-36 are pending in the application. Reconsideration and withdrawal of the rejections in view of the above following remarks are respectfully requested.

In the Office Action, claim 1 is objected to due to informalities; claims 1, 7–10, 15–16, 24, and 29 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants' Related Art (hereinafter "ARA") in view of U.S. Patent No. 6,507,382 to Sakamoto (hereinafter "Sakamoto") and U.S. Patent No. 5,581,382 to Kim (hereinafter "Kim"); claims 2–3 and 17–20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over ARA in view of Sakamoto and Kim, and further in view of U.S. Patent No. 6,356,328 to Shin et al. (hereinafter "Shin"); claims 4 and 23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over ARA in view of Sakamoto and Kim, and further in view of U.S. Patent No. 6,163,355 to Chang et al. (hereinafter "Chang"); claims 5–6 and 21–22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over ARA in view of Sakamoto and Kim, and further in view of U.S. Patent No. 6,414,739 to Akiyama et al. (hereinafter "Akiyama"); claims 30 and 31 are rejected under 35 U.S.C. § 103(a) as being unpatentable over ARA in view of Sakamoto and Kim, and further in view of U.S. Patent No. 6,300,995 to Wakagi et al. (hereinafter "Wakagi"); claims 32 and 33 are rejected under 35 U.S.C. § 103(a) as being unpatentable over ARA, Sakamoto Kim, and Wakagi, and further in view of Shin; claim 34 is rejected under 35 U.S.C. § 103(a) as being unpatentable over ARA in view of Sakamoto, Kim, and Wakagi, and further in view of Chang; and claims 35 and 36 are rejected under 35 U.S.C. § 103(a) as being unpatentable over ARA in view of Sakamoto, Kim, and Wakagi, and further in view of Akiyama.

In the Office Action, claim 1 is objected to due to informalities. Applicants respectfully submit that the limitation "contact hole exposing a drain electrode" finds support in the specification: "the drain contact hole 240 penetrates the first and second passivation layers 136

and 137 and exposes the portion of the drain electrode 22 of the TFT." (Specification, p. 14, ll. 17–20, FIGs. 9D and 9E). Applicants respectfully point out that contact hole 240 is illustrated in FIG. 9E, such that "a second transparent conductive material is deposited on the second passivation layer 137 having the drain contact hole 240." (p. 14, ll. 21–22). Accordingly, Applicants respectfully request that the Examiner withdraw the objection to claim 1.

In the Office Action, claims 1, 7–10, 15–16, 24, and 29 are rejected under 35 U.S.C. § 103(a) as being unpatentable over ARA in view of Sakamoto and Kim. Applicants respectfully traverse the rejection of independent claim 1 and request reconsideration. Specifically, Applicants respectfully assert that the rejection stated by the Examiner does not satisfy the burden of establishing *prima facie* obviousness under 35 U.S.C. § 103(a). (MPEP 2142).

The Examiner stated the following in rejecting claim 1.

> "Sakamoto is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation ***to move the plurality of common electrodes of APA to be on and in contact with the passivation layer*** with contact holes in the Applicants' first passivation layer, second passivation layer, and any insulating protection film, as needed ***to connect a plurality of common electrodes to the common line of APA***; a second passivation layer on the first passivation layer; and a pixel electrode on the second passivation layer ***to allow for easy manufacture of a color display that prevents color unevenness for better display performance***." (Office Action, p. 4, *emphasis added*).

Applicants respectfully assert that the Examiner has not established *prima facie* obviousness, for three reasons: first, the Examiner does not offer a valid suggestion or motivation to combine ARA and Sakamoto; second, there is no reasonable expectation of success in combining ARA and Sakamoto; and third, ARA and Sakamoto, alone or in combination, do not teach all of the elements of claim 1.

First, the Examiner does not offer a valid suggestion or motivation to combine ARA and Sakamoto. "There must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings." (MPEP 706.02(j), MPEP 2143.01). Applicants respectfully submit that there is no suggestion or motivation, in ARA or Sakamoto to combine

these teachings because the proposed modification would render the combination unsatisfactory for its intended purpose. (MPEP 2143.01(V)).

The Examiner's proposed modification of ARA to include the teaching of Sakamoto would render the combination unsatisfactory for its intended purpose because the combination would result in severe reduction in aperture ratio. ARA teaches opaque common electrodes, whereas Sakamoto teaches using the common electrode as a shield to cover the color filter. The common electrode in ARA is made of a "metal layer," such as "Aluminum (Al), Chrome (Cr), Molybdenum (Mo) or Tungsten (W)." (p. 5, ll. 18–19). As such, the common electrode in ARA is opaque. (p. 6, ll. 19–20). In contrast, Sakamoto teaches that the common electrode should cover as much of the color filter as possible for the purpose of shielding: "the common electrode covers at least 75% of the color filter area and at least 90% of the electrode-pair region (the region surrounded by the pixel electrode)." (col. 8, ll. 50–52). Covering at least 75% of the color filter (Sakamoto) with an opaque common electrode (ARA) would block the light through the color filter, greatly exacerbating the poor aperture ratio attributed to ARA. Accordingly, Applicants respectfully submit that the modification proposed by the Examiner would render the combination unsatisfactory for its intended purpose.

Further, Applicants respectfully disagree with the Examiner's stated motivations to combine ARA and Sakamoto. The Examiner cites the motive "to allow for easy manufacture of a color display." (Office Action, p. 4) The Examiner offers no evidence to support the conclusion that the proposed combination of ARA and Sakamoto (above) eases manufacture. Sakamoto says nothing about ease of manufacture. Further, Applicants submit combining ARA and Sakamoto, as suggested by the Examiner, would not ease the manufacturing of ARA. For example, in ARA, the common electrode is already connected to the common line: "a first metal layer is deposited on a substrate 1 and then patterned to form the gate lines 51 and 51, the gate electrode 52, the common line 54 and the plurality of common electrodes" (p. 5, ll. 18–19). It would not ease manufacture, as the Examiner suggests, "to move the plurality of common electrodes of APA to be on and in contact with the passivation layer" because ARA teaches the common electrodes and the common line already formed on the same layer. Accordingly, there is nothing in the express teachings of ARA and Sakamoto to suggest or provide motivation to combine the teachings.

Additionally, Applicants submit there is no implicit suggestion or motivation in either ARA or Sakamoto to combine these teachings. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and ***the nature of the problem to be solved as a whole*** would have suggested to those of ordinary skill in the art." (MPEP 2143.01(I), *emphasis added*). Applicants respectfully submit that ARA and Sakamoto involve completely different problems. The problem addressed by Sakamoto is color filter degradation from exposure to electric fields: "an intense electric field due to scanning and/or signal lines may cause significant charging-up or charging of the color filter, and the electric field may be inadequately absorbed by the electrodes and leak into the liquid crystal layer." (col. 3, ll. 46–52). Further, "an electric field ... affects a color filter, leading to deterioration." (col. 3, ll. 3–5). In contrast, the nature of the problem of ARA involves poor aperture ratio: "the aperture ratio is poor because the common and pixel electrodes are formed of the opaque metal." (p. 6, ll. 19–20). Further, "the aperture ratio is closely related to the brightness ... the stronger the brightness is, the more powerful the backlight device is ... For these reasons (ARA) has high power consumption." (p. 7, ll. 12–14). ARA and Sakamoto involve completely different problems. As such, there is no implicit suggestion or motivation to combine ARA and Sakamoto.

Second, there is no reasonable expectation of success in combining ARA and Sakamoto. There is no reasonable expectation of success because, as discussed above ARA teaches opaque common electrodes, and Sakamoto teaches using the common electrode as a shield to cover the color filter. As discussed above, covering at least 75% of the color filter (Sakamoto) with an opaque common electrode (ARA) would block the light through the color filter, greatly exacerbating the poor aperture ratio attributed to ARA. Accordingly, Applicants respectfully submit that there is no reasonable expectation of success in combining ARA and Sakamoto.

Third, ARA and Sakamoto, alone or in combination, do not teach all of the elements of claim 1. In particular, neither ARA nor Sakamoto, alone or in combination, teaches or suggests "wherein each common electrode is electrically connected with the common line through a corresponding common line contact hole." Accordingly, Applicants respectfully submit that ARA and Sakamoto do not teach all of the elements of claim 1.

Based upon the above remarks, Applicants respectfully assert that the Examiner has not established a *prima facie* case of obviousness in support of a rejection under 35 U.S.C. § 103(a).

Applicants note the Examiner states that "in considering a reference, it is proper to take into account not only the specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom." (Office Action, p. 4, *citing* MPEP 2144.01). Applicants respectfully assert that one of ordinary skill would not draw any inference that might suggest combining ARA and Sakamoto. MPEP 2144.01 cites two cases involving implicit disclosure. The first, *In re Preda*, 401 F.2d 825, 826, 150 USPQ 342, 344 (CCPA 1968), involves the teaching of a single reference. The second, *In re Lamberti*, 545 F.2d 747, 750, 192 USPQ 278, 280 (CCPE 1976), involves two references that, when combined disclosed broader chemical types than that claimed.[1] Although the claimed type allegedly has unexpected benefits, it was implicitly within the chemical classes taught in the combined references.[2] Neither *In re Preda* nor *In re Lamberti* speak to the facts of the present application. For example, neither of these cases involves two references that, when combined, yield a combination that is unsatisfactory for its intended purpose, and in which there is no expectation of success. As such, Applicants respectfully submit that, given the factual backgrounds of *In re Preda* and *In re Lamberti*, implicit disclosure, as defined in MPEP 2144.01, does not apply here. Accordingly, one skilled in the art would not be reasonably expected to draw any inferences from the combined teachings of ARA and Sakamoto.

The Examiner further states that "mere duplication of parts is not patentably distinct," (Office Action, p. 4–5). Applicants respectfully submit that the Examiner has not established how this applies to the rejection of claim 1 and request an explanation of such application should this view point be maintained. Applicants note the case cited in the MPEP, *In re Harza*, pertains to a mechanical structure. The present invention is not a simple mechanical case. Rather, the plurality of common line contact holes and other recited features of the claim go to the heart of the invention. Thus, Applicants submit a duplication of parts-based rejection is inappropriate.

---

[1] "Appellants argue that neither of the prior art references suggests the use of asymmetric dialkyl moieties, because the disclosures of both references are broad, asymmetric dialkyl compounds are neither expressly disclosed nor exemplified, and the preferred embodiment is a symmetric dialkyl sulfonium chloride. However, as noted previously, the disclosure in the prior art of 'at least one methylene group attached to the sulfur atom' would suggest the asymmetric aspect of the claimed invention." *Id.* at 750, 280.

[2] The court stated "the fact that a specific symmetric dialkyl is taught to be preferred is not controlling, since all disclosures of the prior art, including unpreferred embodiments, must be considered." *Id.* at 750, 280.

Applicants further submit that the assertion of duplication of parts by the Examiner does not cure the lack of a *prima facie* case of obviousness.

The Examiner further cites Kim as teaching "wherein the second passivation layer is an inorganic material." Applicants respectfully submit that Kim fails to cure the deficiency of ARA and Sakamoto to teach or suggest all of the elements of claim 1, and that the discussion regarding the teaching of Kim is moot. Additionally, Applicants note Kim is not directed to an in-plane switching (IPS) type device. As such, Applicants submit that the mere fact that a particular material may be suitable in a non-IPS device does not necessarily make the material suitable for an IPS device.

Accordingly, Applicants respectfully submit that claim 1, and its dependent claims 7–10, and 15, are allowable over any combination of ARA, Sakamoto, and Kim.

Applicants respectfully traverse the rejection of independent claim 16 and request reconsideration. The Examiner rejects claim 16, stating that "the steps of manufacturing comprising forming would have been obvious given the structure above." Applicants respectfully submit that claim 16, and its dependent claims 24 and 29, are allowable for the same or similar reasons as those regarding claim 1 above.

In the Office Action, claims 2–3 and 17–20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over ARA in view of Sakamoto and Kim, and further in view of Shin. Applicants respectfully traverse the rejection of claim 2–3 and request reconsideration. Claims 2–3, which depend from independent claim 1, are allowable because Shin fails to cure the deficiency of ARA, Sakamoto, and Kim to teach or suggest all the features of independent claim 1 as discussed above. Accordingly, Applicants respectfully submit that claims 2–3, as they depend from independent claim 1, are allowable over any combination of ARA, Sakamoto, Kim, and Shin.

Applicants respectfully traverse the rejection of claims 17–20 and request reconsideration. Claims 17–20, which depend from independent claim 16, are allowable because Shin fails to cure the deficiency of ARA, Sakamoto, and Kim to teach or suggest all the features of independent claim 16 as discussed above. Accordingly, Applicants respectfully submit that

claims 17–20, as they depend from independent claim 16, are allowable over any combination of ARA, Sakamoto, Kim, and Shin.

In the Office Action, claims 4 and 23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over ARA in view of Sakamoto and Kim, and further in view of Chang. Applicants respectfully traverse the rejection of claim 4 and request reconsideration. Applicants note the Examiner has stated the motivation for modifying the "APA in view of Sakamoto and Kim with SiNx of Chang as an art recognized material suitable for the intended purpose of forming a passivation layer". Applicants disagree with this basis of rejection and request evidentiary documents to support this basis for alleged motivation. Claim 4, which depends from independent claim 1, is allowable because Chang fails to cure the deficiency of ARA, Sakamoto, and Kim to teach or suggest all the features of independent claim 1 as discussed above. Accordingly, Applicants respectfully submit that claim 4, as it depends from independent claim 1, is allowable over any combination of ARA, Sakamoto, Kim, and Chang.

Applicants respectfully traverse the rejection of claim 23 and request reconsideration. Claim 23, which depends from independent claim 16, is allowable because Chang fails to cure the deficiency of ARA, Sakamoto, and Kim to teach or suggest all the features of independent claim 16 as discussed above. Accordingly, Applicants respectfully submit that claim 23, as it depends from independent claim 16, is allowable over any combination of ARA, Sakamoto, Kim, and Chang.

In the Office Action, claims 5–6 and 21–22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over ARA in view of Sakamoto and Kim, and further in view of Akiyama. Applicants respectfully traverse the rejection of claims 5–6 and request reconsideration. Claims 5–6, which depend from independent claim 1, are allowable because Akiyama fails to cure the deficiency of ARA, Sakamoto, and Kim to teach or suggest all of the features of independent claim 1 as discussed above. Further, Applicants respectfully assert that the Examiner does not provide a valid motivation to combine the teaching of Akiyama with those of ARA, Sakamoto, and Kim. The Examiner states that "Akiyama is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to use BCB for the insulation layers to shield the liquid crystal layers from the scanning and signal lines." (Office Action, p. 12). Applicants respectfully submit that Akiyama does not provide such a suggestion.

Akiyama states that "[t]he insulating film-1 and the insulating film-2 may be an organic resin made of, for example, BCB, or a non-photosensitive resin, an inorganic insulating film, such as a silicon oxide film, or a silicon nitride film ... To reduce the degree of coupling, it is preferable that the insulating film-1 and the insulating film-2 have a large degree of thickness." (Col. 9, ll. 59–65). Akiyama does not teach any advantage to using an organic resin instead of an inorganic insulating film. Accordingly, for at least these reasons, Applicants respectfully submit that claims 5–6, as they depend from independent claim 1, are allowable over any combination of ARA, Sakamoto, Kim, and Akiyama.

Applicants respectfully traverse the rejection of claims 21–22 and request reconsideration. Claims 21–22, which depend from independent claim 16, are allowable because Akiyama fails to cure the deficiency of ARA, Sakamoto, and Kim to teach or suggest all of the features of independent claim 16 as discussed above. Further, for the same reason as stated regarding claims 5–6 above, Applicants respectfully assert that there is no motivation to combine Akiyama with ARA, Sakamoto, and Kim. Accordingly, Applicants respectfully submit that claims 21–22, as they depend from independent claim 16, are allowable over any combination of ARA, Sakamoto, Kim, and Akiyama.

In the Office Action, claims 30 and 31 are rejected under 35 U.S.C. § 103(a) as being unpatentable over ARA in view of Sakamoto and Kim, and further in view of Wakagi. Applicants respectfully traverse the rejection of independent claim 30 and request reconsideration. As discussed above with regard to claim 1, the Examiner has not established a *prima facie* case of obviousness using the combined teachings of ARA, Sakamoto, and Kim. Further, Wakagi fails to cure the deficiency of ARA, Sakamoto, and Kim to teach or suggest "a plurality of common electrodes in contact with the second insulation layer, wherein the common electrodes contact the common line via the first contact holes; a third insulation layer on the common electrodes and the second insulation layer, wherein the third insulation layer is an inorganic material; a second contact hole through the second and third insulation layers over a drain electrode of the thin film transistor," and "a plurality of pixel electrodes on the third insulation layer, wherein one of the plurality of pixel electrodes is electrically connected to the drain electrode through the second contact hole." Nothing in ARA, Sakamoto, and Kim, alone or in combination, teaches or suggests at least these features of the claimed invention.

Also, the Examiner states that the motivation to combine Wakagi with ARA, Sakamoto, and Kim is "to reduce losses in the driving voltage applied to the liquid crystal, by providing an active matrix substrate in which degradation of the metal electrode is prevented in a liquid crystal display device." (Office Action, pp. 13–14). This motivation contradicts the objective of Sakamoto, in which "the shield or common electrode [is] between the color filter and the liquid crystal layer, which may reduce effects of accumulated charge in the color filter layer." As such, Wakagi teaches preventing electric field degradation of the metal electrode, whereas Sakamoto teaches using the electrode as a shield to protect the color filter. These two objectives are contradictory.

Therefore, based on these contradictory objectives, there is no motivation to combine the teachings of Wakagi with those of ARA, Sakamoto, and Kim. Accordingly, Applicants respectfully submit that claim 30, and its dependent claim 31, are allowable over any combination of ARA, Sakamoto, Kim, and Wakagi.

In the Office Action, claims 32 and 33 are rejected under 35 U.S.C. § 103(a) as being unpatentable over ARA, Sakamoto, Kim, and Wakagi, and further in view of Shin. Applicants respectfully traverse the rejection of claims 32 and 33 and request reconsideration. Claims 32 and 33, which depend from independent claim 30, are allowable because Shin fails to cure the deficiency of ARA, Sakamoto, Kim, and Wakagi, as discussed with regard to claim 30 above. Accordingly, Applicants respectfully submit that claims 32 and 33, as they depend from independent claim 30, are allowable over any combination of ARA, Sakamoto, Kim, Wakagi, and Shin.

In the Office Action, claim 34 is rejected under 35 U.S.C. § 103(a) as being unpatentable over ARA in view of Sakamoto, Kim, and Wakagi, and further in view of Chang. Applicants respectfully traverse the rejection of claim 34 and request reconsideration. Claim 25, which depends from independent claim 30, is allowable in that Chang fails to cure the deficiency of ARA, Sakamoto, Kim, and Wakagi, as discussed above with regard to claim 30 above. Accordingly, Applicants respectfully submit that claim 34, as it depends from independent claim 30, is allowable over any combination of ARA, Sakamoto, Kim, Wakagi, and Chang.

In the Office Action, claims 35 and 36 are rejected under 35 U.S.C. § 103(a) as being unpatentable over ARA in view of Sakamoto, Kim, and Wakagi, and further in view of Akiyama. Applicants respectfully traverse the rejection of claims 35 and 36 and request reconsideration. Claims 35 and 36, which depend from independent claim 30, are allowable because Akiyama fails to cure the deficiency of ARA, Sakamoto, Kim, and Wakagi, as discussed with regard to claim 30 above. Accordingly, Applicants respectfully submit that claims 35 and 36, as they depend from independent claim 30, are allowable over any combination of ARA, Sakamoto, Kim, Wakagi, and Akiyama.

Applicants believe the foregoing remarks place the application in condition for allowance and early, favorable action is respectfully solicited.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at (202) 496-7500 to discuss the steps necessary for placing the application in condition for allowance. All correspondence should continue to be sent to the below-listed address.

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136, and any additional fees required under 37 C.F.R. §1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 50-0911. Please credit any overpayment to deposit Account No. 50-0911. A duplicate copy of this sheet is enclosed.

Dated: April 21, 2006

Respectfully submitted,

By Valerie P. Hayes

Valerie P. Hayes
Registration No.: 53,005
McKENNA LONG & ALDRIDGE LLP
1900 K Street, N.W.
Washington, DC 20006
(202) 496-7500
Attorneys for Applicant